

**WHAT IS CLAIMED IS:**

- 5 1. A shadow mask assembly comprising:  
a shadow mask having an effective area with slots and a non-effective area  
without slots in the periphery; and  
a frame fixing body for tensioning said shadow mask;  
wherein the shortest distance  $t_M$  from the outermost end of a main frame welded  
to said shadow mask to the interface between the effective area and the non-effective  
area and the width  $t_W$  of the mask welding part formed at the upper part of said main  
10 frame have the relation of  $0.14 \leq \frac{t_W}{t_M} \leq 1.0$ .
- 15 2. A shadow mask assembly according to claim 1, wherein said shadow  
mask is welded to the outermost end of said main frame in the effective area side  
direction within the range of  $t_W/2$  to  $t_W$  which is the shortest distance between the  
effective area and the non-effective area of said shadow mask.
- 20 3. A shadow mask assembly according to claim 1, wherein said main  
frame and said shadow mask are weld in the range of  $0.30 \leq \frac{t_M}{t_W} \leq 0.99$ .
- 25 4. A shadow mask assembly according to claim 3, wherein said main  
frame has the upper part as the welding part width  $t_W$  and one side inwardly sloped  
about said shadow mask so that the side cross section has the upper and lower surfaces  
being parallel with each other.
5. A shadow mask assembly according to claim 3, wherein said main

frame is made of a plate, in which the upper part is bent to have the mask welding width  $t_w$  and the lower part is perpendicular to the upper part and has one end bent parallel with the mask welding width and the other end bent again to closely contact with the perpendicular part to form a slope inward to said shadow mask.

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6. A shadow mask assembly comprising:

a rail as a frame fixed with frit glass along each rear side of a panel; and

a shadow mask welded and tensioned at the rear surface of said rail;

wherein the rear surface of said rail is defined by a welding width  $t_w$  in the

10 range of  $0.14 \leq \frac{t_w}{t_M} \leq 1.0$ ,

wherein  $t_M$  is the shortest distance from the outermost end of said rail to the interface between an effective area and a non-effective area of said shadow mask.

7. A shadow mask assembly according to claim 6, wherein said shadow

15 mask is welded to the rear of said rail in the range of  $t_w/2$  to  $t_w$ .

8. A shadow mask assembly according to claim 6, wherein said rail and

said shadow mask are weld in the range of  $0.30 \leq \frac{t_M}{t_w} \leq 0.99$ .

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